

NEW PERSPECTIVES ON THE STUDY OF LANGUAGE CHANGE*

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This study aims at exploring new perspectives in the research on language evolution and focuses on language change from Proto-Indo-European (PIE) down to modern Slavic languages. To date, thanks to the methods of linguistic reconstruction, interlinguistic comparison and linguistic paleontology a considerable body of information has been accumulated about: 1) the way languages evolve over time, 2) similarities in the evolution process of many even non-related languages, and 3) differences in language change on all levels of grammar. We know now that those changes are quite constrained and that the evolution of different linguistic codes must follow a limited number of patterns (Shevelov 1979; Kortlandt 2001: 3; Fromkin et alia 2006: 536; among others). However, the effectiveness of the above-mentioned methods is often insignificant in the instances where we have absolutely no data to draw upon. Therefore, in order to solve the problem of the absence of physical evidence about how some PIE languages (such as, for instance, Slavic or Baltic) evolved and to contribute to answering the “old question” of where geographically “it” all started, this paper proposes an innovative approach – the method of grammatical feature tracking.¹

1. Introduction

In the last decades, featural approach to the study of different phenomena in the domain of phonology, morphology, syntax and semantics has become quite popular due to its explanatory viability. The goal of our method is to track the transfer of different grammatical features across related languages over time (by means of tracing those features or their possible reflexes) in their modern counterparts as well as in those old and ancient languages whose records have survived down to our day and have been already substantially studied.

The objective of the present study is twofold: 1) to show the importance of applying the method of ‘grammatical feature tracking’ in instances where other methods of historical linguistics are helpless or inefficient, 2) to trace and analyze the distribution, loss and possible reflexes of four grammatical features across related languages,

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¹By “feature tracking” we mean “tracing of perceptible signs or imprints of selected (or crucial for certain explanatory objectives) grammatical features that are distributed temporally (or through temporal continuum) and interlinguistically (from one language to another): a) from mother-language to daughter language, b) between (more rarely but possibly) two not closely related or even unrelated linguistic codes. Some features transfer essentially or partially unaffected by varying intralinguistic factors, while others disappear but leave vestiges of their existence, triggering certain morpho-phonological and even syntactic changes or reflexes. Still others become simply fossilized traces (in a given language) that are not passing on to any other code, but become archaic until they completely vanish.

evaluating also the degrees of their affectedness due to varying linguistic factors. By setting these objectives we are aiming at answering the following question: How does this method help us better understand the evolution of Indo-European languages along the temporal continuum from Proto-Indo-European ‘mother language’ down to modern Indo-European ‘offspring’ languages? Our study will also contribute to answering the questions that excite the interest of many indo-europeanists of various theoretical bents. They are as follows: 1) What was the real location of the geographical *urheimat* (‘homeland’) of Proto-Indo-Europeans? 2) How and when did PIE daughter languages (such as Hellenic, Indo-Iranian, Italic, Celtic, Germanic, etc.) split from the main PIE linguistic continuum (see also Bilous 2012) (giving rise to subsequent ramifications into smaller IE language groups and subgroups)? 3) What were the major grammatical (or structural) tendencies of IE language evolution?

In our study we will focus on certain selected features for two reasons: 1) in view of limited space, and 2) the characteristics² of those features will best help us make our point. The goal here is simply to show how the method works (or what our deductive reasoning is) and what purpose it can serve. Therefore, the features we are most interested in are: case, inflectional periphrasis, gender, and the PIE laryngeals H₂/H₃ that possibly evolved into the Ukrainian morphological innovations *ha-*, *ho-*, *ja-*, *-oh-*, *-k-*.

Features excluded from this study, that undoubtedly deserve our close attention and whose temporal and interlinguistic tracking could definitely shed much light on the evolution of PIE language groups and subgroups as well as reinforce the validity of our above-specified claims, are as follows: affricates (in Modern Ukrainian [MUkr] and Hellenic), transitivizing/causative morphemes *-nu-* and *-uva-* (in MUkr and Nesite³, ergativity (in Nesite and Indo-Iranian), ablaut (or vowel change, in Old-Middle Ukrainian and Italic, Celtic and Germanic), open syllabicity and even C-V (consonant-vowel) alternations (from Proto-Ukrainian to MUkr, from Latin to daughter [Romance] languages), accent mobility (from PIE through Proto-Slavic to MUkr), temporally and interlinguistically persisting similarities in conjugation patterns (Sanskrit, Nesite, Proto-Latin, Germanic, West and East Baltic), diminutiveness on nouns (with the acme of its realization in MUkr), similarities in nominal declension patterns (PIE, Sanskrit, Proto-Latin, Germanic, Nesite, Hellenic, Germanic), yers (or ‘jers’, from PIE through Proto-Slavic to Modern Slavic or MUkr–Polish linguistic core [cf. Bilous 2012: 16], morpheme *-sk-* (MUkr and North Germanic (e.g. Modern Norwegian), infinitival morpheme *-i* (MUkr–Lemko [*buti*] and Welsh [*geni*] and Sanskrit [*janati*, *jixati*, etc.]), multifunctional GEN-PART case (Nesite, MUkr), multifunctional DAT case, realization of the feature of instrumentality through multifunctional INSTR case (see Bilous 2010a–2011a).

An explanation will be elaborated in order to show how some features (such as case), although being vulnerable to loss in the context of language contact, can be preserved in a language for a surprisingly long time, if that language is spoken in an agricultural (and thus culturally strong) society (as opposed, for instance, to a nomadic or migratory way of life) whose representatives have lived in a certain territory for hundreds

²Primarily, their structural value or their potential to affect a sentential structure of a sentence (or of its parts) in the instance of their being corrupted or lost.

³A more correct name for the (long ago) extinct (Indo-European) language often referred to in the literature erroneously as “Hittite”, which is in fact a linguistic code belonging to the Hamitic branch of languages (in accordance with the Biblical account of the encounter of Abraham with the Hittites (the descendants of Ham) around the 21st century BCE, speaking a non-IE but an Afro-Asiatic language.

and even thousands of years (see also Bilous 2012). On the other hand, this feature is easily affected and even lost if it belongs to a language whose speakers live in an unstable (due to constant migrations) society. It will also be argued that grammatical features can be distributed in related languages in varying ways: some languages will inherit them from a proto-language and accumulate them, in others their number or their reflexes will vary because of the agency of a dozen or so (extra)-linguistic factors. In our investigation we side with Kortlandt (1990: 1) in that, contra Gimbutas (1985), among others, linguistic evidence and interpretations need to be supported with archeological interpretations and evidence (see also Bilous 2012).

2. Premises

There are several reasons that led us to write this paper. Firstly, traditional methods of historical linguistics leave gaps, inconsistencies and misconceptions in their accounting for language evolution, dating of language splits, of links between closely and less related linguistic codes, directionality of the evolution of languages, among some other issues. For example, advocates of the so-called “Indo-Germanic proto-language” idea (mostly German scholars) (Lehmann 1992–1997: 67; among others) have been constructing their theories and moulding their analyses (since the beginning of the 19th century) around the idea that Germanic languages most closely reflect the characteristics of the mother language of all Indo-European tongues.

Secondly, due to rapid technological progress (that significantly positively affected the quality of scientific research) in the last twenty years or so growing evidence coming from different disciplines of science (adjacent or not to linguistics, e.g. genetics [in particular the evidence of the Haplogroup R1a1a distribution, despite some varying interpretations], anthropology, cultural studies, archaeology, Bible studies, etc.) shows with much more clarity and precision where the IE *urheimat* is to be found, from where all the speakers of IE daughter languages really migrated, and in what chronological order as well as when the branching of what can be called ‘PIE continuum’ or “PIE core” (Bilous 2012: 28) into initially peripheral dialects (Hellenic, Indo-Iranian, Italic, Celtic, Germanic, etc.) took place.

Thirdly, albeit to date there are at least two most influential hypotheses about the origin of Indo-Europeans and about the location of their *urheimat*, such as the Kurgan Hypothesis (Gimbutas 1973) and the Anatolian Hypothesis (Renfrew 1987), the results of numerous interdisciplinary studies seem to (at least *grosso modo*) substantially support the veracity of the former and the fallacy of the latter. However, both have certain convincing elements that contribute to our understanding of how the events really unfolded. By way of review, according to the Kurgan Hypothesis PI-Europeans were patriarchal nomads who started their expansion from Pontic-Caspian steppe around 4000 BCE, which spanned until 1000 BCE, whereas the Anatolian Hypothesis stipulates that PI-Europeans migrated into Europe from Asia Minor around 7000 BCE⁴.

⁴In Bilous (2012) we have countered the dating of the two hypotheses. Modifying slightly our previous view though, we posit two stages in PIE: early PIE and late PIE. Early PIE most likely was spoken (for a very short period of time) in eastern part of Asia Minor (in the second part of the 23rd century and in the first part of the 22nd century BCE) until the growing population of PIE speakers migrated into the Pontic-Caspian steppe, but did not stop there. Speakers of early PIE kept spreading toward the Dnieper river basin and farther west toward the Dniester river basin. Therefore covering a substantial geographic continuum, speakers of early PIE formed several dialectal communities (with social order changing rapidly from

3. The study

3.1 Our hypotheses

Our claims are as follows: 1) counter Gimbutas (1973b), we posit that PI-European societal life was initially patriarchal (around 22nd–21st centuries BCE, corresponding to stage I – early PIE [see footnote 4]), then it became egalitarian and even matriarchal in nature, in partial agreement with Mallory (1989–1991) (corresponding to stage II – late PIE); 2) PI-Europeans spoke different dialects of the same Proto-language; 3) PIE societal order as well as reduced contact between speakers of different dialects had a considerable impact on their language – these two major factors led to restructuring of PIE grammatical system⁵; 4) in view of the above, it is possible to conjecture even three stages of the PI-European language: early-, middle- (or intermediate) and late-PI-European (the latter starting around the 17th–18th century BCE and identified with the Trypillian language (see footnote 3 above); 5) finally, we agree with Kortlandt (2010), as well as with some other scholars, that the dating of the spread of major Indo-European communities, based mainly on archaeological findings and interpretations, is largely exaggerated (in part due to resorting to dubious carbon-dating method that cannot be trusted as a reliable method of investigation).

3.2 The method of grammatical feature tracking

Our method (see also Section 1 and footnote 1 above) is relatively simple: we look into the distribution, transformation or loss of particular grammatical features along the

nomadic to settled agrarian), which led to a number of interlinguistic changes resulting in the gradual emergence of the late PIE around the 20th–19th centuries BCE. During that gradual shift the newly forming late PIE linguistic continuum had quite possibly a linguistic core (with a major accumulation of grammatical features characterizing this language) and peripheral dialects whose speakers must have shared many linguistic and cultural features with the speakers of the central dialects. We date the late PIE to the period between the 19th–18th centuries and the 15th century BCE and we identify it with the Trypillian (or also known as Cucuteni-Trypillian) culture (whose characteristic elements can be easily identified with the Ukrainian culture, e.g. features of *vyshyv(an)ka* ‘embroidery’, *pysanka* ‘painted easter egg’, unique art, elaborate village dwelling construction, female figurines, etc.), heavily researched in the last-century Ukrainian interdisciplinary scholarship. As the territory (although vast) was getting fast overpopulated, peripheral communities or tribes chose to leave their PIE homeland and migrate elsewhere, starting with the Hellenes in the 19th century BCE in the south-west and the Indo-Iranians in the 18th century BCE in the south-east of the PIE continuum. The first to leave, though, were probably the Anatolians, since their Nesite and Luwian dialects manifested features of early (e.g. laryngeals, lack of tripartite gender distinction, etc.) as well as possibly of late PIE (e.g. transitive morpheme *-nu-*, not found in Hellenic or Indo-Iranian, but in Slavic [the same form – in Ukrainian, and its allomorphs – in other Slavic languages]).

⁵Examples of the structural (major as well as minor) changes triggered by those factors would be: ergative to nominative-accusative transformation, emergence of the (tripartite) category of gender, changes in case and nominal declension systems, introduction of the so-called law of open syllables (in connection with high level of vocalicity), development of inflectional periphrasis on post-verbal nouns, etc. It is also noteworthy, that there is a consensus among leading scholars that Indo-European proto-language was not an accusative language, but it evolved into this type of linguistic code (and our claim here is that it happened within a very short period of time, spanning likely over 10-15 generations). However, whether it evolved from an active or an ergative code – this issue still seems to be subject to debate.

temporal-linguistic continuum that covers approximately the last 4000 years within the Indo-European domain of languages in order to see how it corroborates or disproves the claims we made in the previous section.

The following stages in feature distribution (preservation and expansion) are, in our view, to be distinguished:

- 1) inheriting (possibly in combination with other features) from a proto-language;
- 2) preservation (when a feature is strong enough not to be lost, usually due to other interrelated features and grammatical phenomena, e.g. Differential object marking [DOM] is transferred into MUkr in relation with CV[consonant-vowel]-syllabification, accent distribution, post-verbal inflectional periphrasis, etc.);
- 3) expansion (other related phenomena emerge in relation to the agency or (re-)activation of a given feature).

3.3 Features under study

3.3.1 Case

Tracing case distribution in PIE daughter languages we discovered that languages of the migrating linguistic communities that left their historical homeland tended to lose sooner or later rich case morphology, and with it – the rich case system (8 or 9 cases) of nouns inherited from PIE. Below follow the detailed changes in case systems of major PIE daughter languages such as Proto-Hellenic, Proto-Anatolian, Proto-Indo-Iranian, Proto-Italic, Proto-Celtic, and Proto-Germanic. These, in turn, went through further filiation.

Proto-Hellenic (19th century BC) represented by Mycenaean Greek (16th to 12th century BCE) had already 7 cases (NOM, GEN, ACC, DAT, INSTR, LOC, VOC, after ABL and GEN became combined). Later, Ancient Greek (9th–6th century BCE) only 5 cases were left (NOM, GEN, DAT, ACC and VOC, since DAT, INSTR and LOC were syncretized into DAT. Thus, ABL, INSTR and LOC case inflections were lost.

Anatolian Proto-language (or Proto-Anatolian, 19th–18th century BCE) reduced generally its case system to 7 cases (NOM, GEN, ACC, INSTR, ALLative or DIRectional, ABL, and a case fusion of DAT-INSTR). However, one of its dialects that later became an independent language, Nesite (spoken between 18th–17th and 13th centuries BCE), possessed, interestingly, 8 cases: NOM, VOC, ACC, DAT-LOC, ABL, ERG, ALL, INSTR. However, the inflectional syncretism of DAT-LOC and ERG are most likely case innovations.

Indo-Iranian (18th–17th centuries BCE) split into Proto-Indo-Aryan (PIA) and Proto-Iranian (PI). PIA is represented by Vedic (or pre-Classical) Sanskrit (16th century BCE). It preserved all 8 cases of PIE (NOM, VOC, ACC, INSTR, DAT, ABL, GEN, LOC) and kept them all for about a thousand years evolving into Sanskrit (that can be referred to as Late Indo-Aryan of the 6th–5th centuries BCE). It soon lost 2 cases that resulted in the merge of VOC and GEN-DAT. Hindi, a direct descendant of Sanskrit, retained practically none of the old cases, with an interesting innovative combination of 3 cases left: DIRect, OBLique and VOC.

PI split into Scythian (having no sufficient attestation), (Old-)Persian, (Old-)Avestan, and Median (with no sufficient attestation). Old Persian (11th–3rd centuries BCE, on Iranian Plateau) had 7 cases (NOM, VOC, ACC, INSTR-ABL, DAT, GEN, LOC), of

which INSTR-ABL was an inflectional innovation. Avestan (1st–4th centuries AD) still had 8 cases (NOM, VOC, ACC, INSTR, DAT, ABL, GEN, LOC).

Proto-Italic (13th century BCE) retained all PIE cases down to Old (or Early or Archaic) Latin (before 1st century BCE), which lost INSTR case, merging it with DAT. However, it did not keep the 7 cases (NOM, ACC, DAT, ABL, GEN, LOC, VOC) of PIE and 5 nominal declensions for too long. During its next stage of evolution, in Late (=Classical) Latin, it had already 6 cases (since VOC merged with NOM except for the 1st declension).

Proto-Celtic speakers left their PIE *urheimat* around 11th–10th centuries BCE. Its dialects, spoken until the 5th century BCE, had 8 nominal cases that were kept for some centuries to come. Nonetheless, Old Irish (7th–10th centuries AD) lost INSTR, LOC and ABL, thus retaining only 4–5 cases, 4 fem. and 5 masc.: NOM-VOC, ACC, GEN, DAT.

Proto-Germanic (12th to 7th centuries BCE) lost practically immediately LOC and ABL, but NOM, GEN, DAT, ACC, INSTR, and VOC were retained. Its descendants, Gothic (East-Germanic, spoken during at least 1st–6th centuries AD) and late Proto Norse (3rd–7th centuries AD), reconstructed through Old Norse (spoken after 7th cent. AD), had both retained only 4 cases (NOM, ACC, DAT, GEN, since INSTR and VOC were lost).

It is possible that the speakers of Proto-Italic left their *urheimat* before the speakers of Proto-Germanic – in the 12th century BCE, heading south-west, then the Germanics followed in the 11th–10th centuries BCE (probably gradually), heading north-west, in the direction of Scandinavia. The Celts departed westward in the 10th century BCE. And some time later, before the 7th century BCE – the Balto-Slavic linguistic continuum was formed inheriting directly many features of what we call “Trypillian linguistic continuum”⁶. Then the northern (or north-eastern, or Baltic) dialects started to develop independent features (still retaining some of the PIE features no longer observable in Slavic), whereas southern (Slavic) dialects became identifiable by the 5th century BCE⁷.

Proto-Slavic or post-Late-Trypillian (after 7th century BCE and down to 4th century AD) retained 7 cases (ABL being lost) and PIE noun declensions were largely preserved. There are still some vestiges of ABL case in MUkr – post-prepositional pronouns marked with an accent on the first syllable (e.g. *vid t’ebe* ‘from you’, see also Bilous [2011a: 56]) represent an alternative transformational solution (since in some languages accent shift or change in tone [e.g. Chinese Japanese] are two alternative ways to change form and with it – meaning).

The distinguishing feature of the Slavic group is that its linguistic community never left their PIE *urheimat*, which in part explains a long linguistic stability, with only

⁶Kozlovs’ka (1926), Achmeniov et alia (1940), Shylov (2003), Videiko et alia (2004), Videiko (2005–2011), Mosenkis (2002–2006), Cherniakov et alia (2004), Burdo (2005), Sereda (2005), Mytsyk (2006), Luchyk (2008), Hubernachuk (2008–2010), among other Ukrainian scholars, discuss in many details the questions of cultural, social and linguistic continuity and connectedness (largely overlooked and understudied in modern Western scholarship) between the two (agrarian, democratic and peaceful) civilizations – Trypillian and Old Ukrainian (before and at the onset of the Slavic societal formation of Kyivan Rus’).

⁷Keeping also in mind the term “sclaveni” used by 1) Herodotus (as far back as the 5th century BCE) in his classical work *The Histories*, while describing the peoples living to the north of Greek colonies along the Black Sea northern coastal line; 2) Byzantine historiographers Procopius and Jordanes (6th century AD) refer to the “Sclaveni” and “Antes” living north of the Danube river and speaking the same language (cf. electronic sources on p. 15 below, retrieved on July 19th, 2015).

(relatively) minor structural changes (in part – as a result of contact with the surrounding languages), and many PIE features – transferred down to modern Slavic languages. Ukrainian (in particular some of its western dialects) has the highest concentration of all those features, that are part of the Slavic linguistic core (Bilous 2012: 16). However, some PIE features can also or only be found in Baltic languages (notably Lithuanian, generally more conservative in its phonology than all of Slavic [Schallert 2015: pc]).

Crucially, tracking the corruption of PIE case system through daughter languages and their subsequent branches leads us to reinforce our hypothesis about the existence of a ‘PIE – MUkr temporal continuum’ (a concept introduced in Bilous [2012: 17]) spanning roughly the last four millennia. Along this continuum the evolution of case system may be divided into three stages (with ABL being the only case lost): 1) DAT and LOC are two separate cases; 2) a merger⁸ DAT+LOC takes place; 3) LOC and DAT are separated: DAT is realized in the form of inflection, whereas LOC is marked prepositionally.

Our investigation on case loss along the Indo-European temporal-linguistic continuum can be roughly summarized in the following table⁹:

Table 1. Case loss through linguistic filiation of PIE

case lang.	NOM	ACC	DAT	VOC	ABL	LOC	GEN	INSTR
PIE	+	+	+	+	+	+	+	+
P-Greek	+	+	+	+	[+]	[+]	+	[+]
P-Anat.	+	+	+	+	+	+	+	-
PIAryan	+	+	+	[+]	+	+	[+]	+
P-Iran.	+	+	+	+	[+]	[+]	[+]	[+]
P-Italic	+	+	+	[+]	+	+	+	[+]
P-Celt.	+	+	+	+	[+]	[+]	+	[+]
P-Germ.	+	+	+	[+]	[+]	[+]	+	[+]
P-Slavic	+	+	+	+	[+]	+	+	+

From this table it follows that NOM and ACC cases (as part of the universal configurational-structural default [Bilous 2011a: 336]) are not susceptible to loss (being also least marked on nouns occupying central syntactic positions), nor is DAT. But LOC and INSTR manifest the tendency of syncretizing into DAT case. Thus, DAT (or some form of it) is crucial for the expression of basic grammatical relations even in an analytical (or non-fusional language). Another interesting fact: Proto-Slavic lost only one case – ABL. This case seems to tend cross-linguistically to be the first one prone to loss.

Some conclusions need to be drawn here: 1) compared to other major IE language groups, Balto-Slavic¹⁰ did not undergo the dramatic case loss, which can be explained by

⁸MUkr and Nesite have gone through similar or identical changes, beside the fact that they share, as we will discuss below, that Nesite’s closer relatives (Hellenic or Indo-Iranian) do not possess. In Nesite DAT also merged with LOC, similarly to what apparently happened in Old Ukrainian before the 12th century AD (e.g. *jixati Kyjev-u*-DAT-LOC ‘go to Kyiv’; also in Church Slavonic: *sie tesar’ tvoi griadiet tiebe*-DAT-LOC ‘behold thy King cometh unto thee’ [<http://www.utexas.edu/cola/centers/lrc/eieol/ocsol-8-X.html>]).

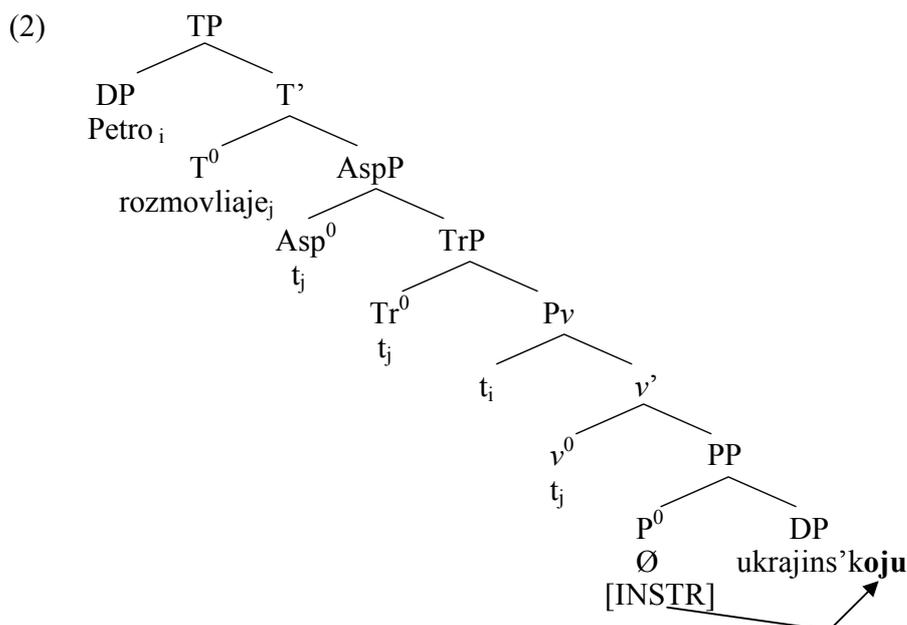
⁹+/- sign that stands for the availability of a given case; /-/- sign that represents lack of a given case. In square brackets – cases lost some time after the speakers of a given community (or tribe) left their PIE *urheimat*.

the simple fact that their speakers never left their *urheimat*, but instead spread around it; their sedentary way of life and egalitarian social order contributed to the preservation of the complex case morphology, although Balto-Slavic dialects were not immune to the general processes of linguistic evolution; 2) there is an interesting correlation between rich case morphology and post-verbal inflectional periphrasis (see Section 3.3.2 below) in temporally and spatially unrelated languages, Nesite and MUKr: they both are characterized by conspicuous multifunctionality (see also Bilous 2011a: 4, 29, 90, 155, 207, 333) of indirect or oblique cases, predominant or frequent use of preposition-less or inflectional non-accusative markings on post-verbal nouns. The following section deals with this feature.

3.3.2 Inflectional periphrasis (IP)

This feature is represented by several inflected constructions, including verb-governed nouns that are marked with a post-positioned affix (usually characteristic of a language with rich case morphology). Post-verbal nouns receive case (such as INSTR, ABL, ALL, LOC, DAT) from a null P and are part of DOM¹¹:

- (1) Petro rozmovliaje ukrajins'koju
 Peter speaks Ukrainian-INSTR
 'Peter speaks (in) Ukrainian.'



¹⁰Baltic languages lost some cases long after the separation of Baltic and Slavic dialectal groups, while most Slavic languages have (to a varying degree) retained much of PIE case morphology down to this day (Slavic languages spread radially from their PIE center, whereas Baltic linguistic continuum [smaller in size] shifted completely from that center and came into significant contact with Finnic languages).

¹¹See Bilous (2011a/b and 2010a/b) for an exhaustive analysis of this phenomenon in Ukrainian and French.

Complements of nouns and adjectives can also carry IP marking in Ukrainian (like in Latin and Nesite, and in some instances – in German), whereas analytical languages like English or French have in those instances “visible” prepositions:

- (3) sporidnenyj hermanskym movam
 related-MASC Germanic-DAT.PL languages-DAT.PL
 ‘related to Germanic languages’

Croatian, having been close to the Slavic linguistic continuum core, retained the archaic form that was lost in Old Ukrainian (see also Bilous 2011a: 322):

- (4) a. Idem doktoru
 go-1PERS.SG doctor-DAT
 ‘I am going to the doctor.’
 b. Idem kući
 go-1PERS.SG home-DAT
 ‘I am going home.’

Here are also some examples from Nesite:

- (5) a. nepiš
 sky-LOC
 ‘in the sky’
 b. hamešanti
 spring-DAT-LOC
 ‘in the spring’
 c. Parna paizzi
 home-ACC go-3PERS.SG
 ‘He/She goes home.’
 d. Hattušaz
 Hattuša-ABL
 ‘out/from Hattuša’
 e. nepišaz
 heaven-ABL
 ‘from heaven’

For the sake of comparison, IP in Latin (see also Bilous 2011a: 328):

- (6) a. Claudius ibat Rom-am
 Claudius go-PAST Rome-LOC(=ACC)
 ‘Claudius went to Rome.’
 b. Sum dom-i.
 Am home-LOC
 ‘I am home.’

Nesite, Latin and Ukrainian are three languages¹² separated in time and space to a significant degree. There are no physical records that would allow us to attest how the feature of IP in all its richness (or completeness) was transferred along the Indo-European temporal continuum. However, we can still gain some insight: 1) the fact that the Anatolian language Nesite had no tripartite gender distinction, but the feature of IP in its full-fledged realization indicates that it split from PIE at its early stage, before the development in it of the tripartite gender distinction; 2) IP was transferred into languages with normally six or more cases in their nominal morphology, like Latin, and possibly Proto-Germanic and Proto-Celtic, but with case loss in their daughter languages this feature was generally lost; 3) Proto-Baltic and Proto-Slavic (in our view – roughly 5th to 1st century BCE) or Common Slavic (see also Bilous 2012: 23; among others) had undoubtedly inherited the feature of IP from early PIE through late PIE (or Trypillian), however with case loss Baltic languages lost this feature, but it was retained in Old Slavic (in our view – around the period of 1st [or earlier] to 6th centuries AD) and transferred through Proto-Ukrainian¹³ (before mid-11th century AD according to Shevelov [2002: 54]) into Old Ukrainian (9th–12th centuries AD) and down to modern Slavic linguistic core, of which Croatian, Central and Western Ukrainian with its (Hutsul and Lemko) dialects, Rusyn (former Ukrainian dialect), some Czech dialects, Eastern dialects of Slovak, and South-Eastern dialects of Polish are part.

3.3.3 The feature of gender

Proto-Anatolian did not have a tripartite (masculine/feminine/neuter) gender distinction developed (most likely) in late PIE (although Nesite did have some basic gender markings). It only had an animate-inanimate distinction retained possibly from a peripheral dialect of early-middle PIE.

We link the emergence of the tripartite gender marking in PIE to the societal shift from patriarchy to matriarchy or at least egalitarian social order (and to the shift from migratory/nomadic to sedentary/agrarian way of life). This change took around 2-3 centuries at the most. The only socio-cultural community that has all the relevant characteristics (see also Bilous 2012 for details) of that new social order is the Trypillian civilization. The language spoken by Trypillians was at least a dialect of the late PIE language, and quite likely – a central one.

Using the terms of Luraghi (2011: 436), the rise of feminine gender value was caused by “semantic motivation”. When such motivation is triggered or activated, “gender systems may arise in different ways and from different types of morphological material” (same source).

It is also logical to suggest that the Trypillian dialects (in line with abundant archaeological evidence accumulated in the last century in Ukraine, Moldova and Romania) constituted a linguistic-geographic-temporal center or core of the vast late PIE language continuum. Due to its vastness, some differentiating features had to be developing between western and eastern peripheral dialects (hence the distinction between ‘centumization’ and ‘satemization’ [von Bradke 1890] processes that took place

¹²Indo-Aryan (e.g. Sanskrit) and Iranian (e.g. Persian) languages also have had instances of IP at different stages of their evolution.

¹³This language was most likely a vast linguistic continuum with a number of dialectal varieties in the centre of Slavic unity (possibly identifiable with Old Slavic at its early stage).

in the dialects of Indo-Europeans leaving their *urheimat* at different times and heading in different directions evidently as a result of overpopulation and overuse of the available natural resources).

Our analysis of the transfer of the tripartite gender marking in the form of postfixes from late-PIE down to modern Indo-European languages leads us to make the following generalizations: 1) the three values of gender are best preserved (in a balanced way) in the languages that belong to the Slavic linguistic core, that is Ukrainian, Rusyn (former Ukrainian western dialect closest to Ukrainian Lemko dialect), Croatian, and partially other languages (Polish, Czech, Slovak, Belorussian), but not Russian (which manifests a strong tendency to ‘masculinize’ many new or borrowed words); 2) out of the three gender values, neuter is the first to be lost (e.g. Romani, Irish, Welsh, Latvian, Romance languages, but Danish is an exception, having the values of common and neuter and in some dialects – masculine); 3) there is a (relative) correlation between case loss and gender loss: a) a language can still retain 3 or 2 gender values, if it has 4 cases (e.g. 4 cases and 3 gender values: German, Greek, Bulgarian, and some dialects of Norwegian; except for Macedonian [2 cases, but 3 gender values], Irish [3 or 4 cases, but 2 gender values]); b) but a language with less than 4 cases is more likely to have only 2 gender values or none (e.g. Romance languages [feminine versus masculine], English [no cases, except Genitive; no gender values], Danish [no cases, except Genitive; no feminine], Welsh [no cases, but feminine-masculine distinction retained]).

3.3.4 Laryngeals

The so-called ‘Laryngeal Theory’ was originated by Ferdinand de Saussure (1879), according to whom there were no laryngeals¹⁴ in PIE daughter languages. Nonetheless, with the discovery and deciphering of the Nesite language at the beginning of the 20th century their existence in the Anatolian branch was confirmed. Nesite has generally been considered to be the only language displaying the feature of laryngeals¹⁵. And yet, our crosslinguistic analysis of all Indo-European languages leads us to posit the following ideas: 1) reflexes of the PIE laryngeals are to be possibly found in a number of modern Indo-European languages¹⁶, particularly in the languages and dialects of the Slavic linguistic core (see also Kortlandt [1975] for a detailed analysis of the complexity of these developments in Slavic), and essentially – in Ukrainian. 2) this feature has been transferred in time through some dialects of late PIE to Proto-Slavic and down to MUKr.

The fact that laryngeals existed, purportedly, only in Anatolian languages (Nesite, Luwian, and Lycian) can be interpreted as follows: (as mentioned above) Proto-Anatolian branched off from early PIE. The latter consisted of dialects spread far and wide and rapidly evolving to the point of losing the glottals in question. However, the story of this

¹⁴Referred to generally as H₁, H₂, and H₃.

¹⁵It generally retained two of the three laryngeals: H₂ and H₃ word-initially.

¹⁶1) fricative glottal (voiceless) /h/ also retained in: Czech (voiced, though), Danish, German, Norwegian, Swedish, English, Armenian, Albanian, Hindi-Urdu, Punjabi, Romanian; 2) both fricative and plosive (voiceless) glottals: Ukrainian, Croatian, Slovenian, Russian, Macedonian, Latin, Irish, Welsh, Dutch, Frisian, Icelandic, Sanskrit (both voiced and voiceless!), Pashto, Farsi, Nesite (three: /ʔ/, /h/, /hʷ/); 3) only plosive glottal /ʔ/: Kurdish (!).

feature is not by far that simple. Although Hellenic or Proto-Greek as well as Proto-Indo-Iranian, whose speakers left their *urheimat* almost immediately after the Anatolians, did not have laryngeals, they did manifest some vestiges or reflexes thereof (i.e. in the form of certain phonological changes still debated in the literature).

In line with our two claims formulated above, Proto-Anatolian dialect of early PIE must have been very close to the center of the PIE linguistic continuum (possibly in its southern area), whereas Hellenic and Proto-Indo-Iranian were not. This explains how the PIE feature of laryngeals was transferred to Proto-Balto-Slavic and even Proto-Germanic in the form of multiple direct reflexes (or triggered changes that seem to be their vivid reflections). It also makes sense to suggest that: 1) Nesite laryngeals are not exactly the same laryngeals that early PIE had, but their partially retained copies (in view of the changed phonetic context where they appear), as we will see in the comparative table below, 2) late PIE was similar to Nesite in that it was in the process of losing the original quality of the laryngeals.

In Proto-Ukrainian (or Old Slavic, see footnote 13) and MUkr, the effects of the agency of the feature in question can apparently be traceable in the form of indirect (first 5 examples) and direct (see marked glottals in bold – the last two examples) reflexes:

Table 2. Traceability of the feature of laryngeals in Nesite and PUkr/MUkr.

PIE	Nesite	PUkr to MUkr
H ₃ -eron	haran ('eagle')	orel → orel
H ₃ -est-H ₂ -oi	hastai ('bone')	kost' → kistka
H ₃ -ewi	hawī ('sheep')	ovica → vivtsia
H ₁ -eH ₃ -s	- ais ('mouth/lips')	usta → vusta/usta
H ₃ -erbh	harp ('separate')	krem-/krom- → okremyj
H ₃ -orgh-ey	-ark ('mountain')	hará/hóra → horá
pe H ₂ -ur	pahur ('fire')	ahn' → vohon' / vatra

The initial (prothetic) /v/ in the words *vivtsia*, (*v*)*usta*, *vohon'* are added innovations that occurred some time between Old and Middle Ukrainian (a unique characteristic of this language, though noticeable to a lesser extent in varieties of Czech [Schallert 2015: pc], see also Shevelov 1979: 748–752 and Shevelov 1984).

MUkr demonstrates other reflexes of PIE laryngeals (in some cases – with mobile stress, as in Ex. 7a). For example, in some dialects an aspirated labial-occlusive seems to be a vestige of the laryngeal H₃, semi-consonant /j/ – of H₂ (Ex. 7b) and consonant /k/ – of H₃ in word-initial position (Ex. 7d) and of H₂ – in the word-internal position (Ex. 7c/d):

- (7) a. pýla / pylá = p^hýla (in PIE: p_{H3}iléH₂)
 drink-PAST.3PERS.SG.FEM
 'she drank'
- b. jajo // jajko / jajtse (in PIE: H₂ouióm)
 'egg'
- c. tonkyj (in PIE: tenH₂uós)
 'thin'

d. **kist' / kistka**
'bone'

(in PIE: H₃-est-H₂-oi)

It is also noteworthy that PIE voiced aspirated velar /*g^h/ became glottal /h/ in a pre-Proto-Slavic dialect (that developed into Proto-Ukrainian) and in Proto-Sanskrit, the two being possibly dialects of the late PIE, their clade, and belonging to the same areal continuum (e.g. PIE **ghut* → SKT *huta* / pre-Proto-Slavic **hu-* [MUkr *hukaty* 'invoke, call', *vyhuk* 'interjection', etc.], but [!] Old-Church-Slavonic: *zov*, and in Proto-Germanic *guth*), whereas /z/ and /zh/ became /g/ in Latin and /k/ in Germanic (PIE * *gno-* → Latin: *gno-scere* / *ignor-*, Proto-Germanic: *kne-w*, Proto-Slavic: *zna-* / Skt: *jna-*, which is not surprising, since they were no part of the same areal continuum).

As to H₁, it was likely realized as two consonants /ʔ/ and /h/ that did not fall together in MUkr, e.g. *Boh/bohattyj* 'God'/'rich', *hanyty* 'scold', *harmata* 'gun' (compare to the English 'army', Italian 'armata', etc.). By extension (or by way of what we call "featural expansion phenomenon" *hekannja*), in some colloquial or rural Ukrainian varieties we observe such examples: *Hameryka* = *Ameryka* 'America', *hochi* = *ochi* 'eyes', *hojirky* = *ohirky* 'cucumbers', *ha?* (an interjection equivalent to 'What? What did you say?', and the like).

4. Conclusions

Resorting to extraction of certain features that are of great grammatical significance (i.e. whose agency has a huge impact on the directionality of structural transformations of any linguistic code) proves to be very promising in view of the explanatory potential that their diachronic and interlinguistic analysis gives us.

This study helps us see how, by means of grammatical feature tracking, we can retrace the evolution of the grammatical systems of different language groups within IE linguistic realm as far back as their original proto-language. Comparing those changes primarily with archeological and genetic evidence about the directionality of different ethnic and cultural group migrations we can retrace the geographical *urheimat* of Proto-Indo-Europeans and even make significant adjustments in the dating and localizing of those migrations from where they originally started.

In contrast with the Comparative method (that uses feature-by-feature comparison of two or more languages with common descent from a shared ancestor, e.g. Germanic languages share generally 3 genders, 4 cases on nouns, pre-nominal free inflected determiners and several declension patterns) and the method of Internal Reconstruction (within one language), in our method we: 1) select grammatically salient or strong features that are crosslinguistically retained (completely or leaving vestiges/reflexes) or lost; 2) trace their distribution (i.e. their transfer and expansion), corruption and loss by analyzing their traceable, constrained and analogous reflexes on intra- and interlinguistic levels; 3) once we know everything (or learn as much as possible) about the diachronic and interlinguistic distribution of a given feature, we derive important inferences that enable us to see a bigger picture of how languages evolve in the form of crosslinguistic patterns, paths, similarities and differences.

Tracking the crosslinguistic tendencies and directionality in the loss of PIE language case feature through its daughter languages helped us confirm our hypothesis (Bilous 2012) about the existence of: 1) PIE – Proto-Slavic – MUkr temporal-linguistic continuum in the evolution of Indo-European languages, through which a major transfer

of salient PIE features occurred, 2) the *urheimat* of Indo-Europeans roughly within the territory of modern Ukraine. Language groups (whose speakers had been leaving their historical homeland at a given time) branched off from the above-specified continuum and underwent in time significant structural changes that went hand in glove with PIE grammatical feature loss or corruption.

From our analysis of the full-fledged distribution of the IP feature in languages temporally and spatially disconnected follows that: 1) this feature was already present in early PIE; 2) there is a correlation between the availability of rich case morphology and IP realization; 3) due to different (mentioned in this paper) intra- and extra-linguistic factors this feature was fully transferred only to Slavic, in particular – (Proto-/Old-/Modern) Ukrainian, which supports the idea (expressed by some geneticists, historians, anthropologists, and archaeologists) that speakers of the Slavic areal linguistic core (Lemkos, Ukrainians, Rusyns, etc.) are most likely the direct descendants of Proto-Indo-Europeans.

Surprisingly (due to significant separation in time and space), Ukrainian shares with Nesite, unlike other less related IE languages, old or modern, some structural features that only in these two grammatical systems have achieved their full realization potential. We analyzed two of those features: post-verbal inflectional periphrasis and laryngeals. In contrast, there are at the same time features whose values are (interestingly) not shared by the two linguistic codes, such as tripartite gender. This reinforces our view that the category of gender may have emerged in western dialects of middle or late PIE and with time it was transferred to PIE eastern dialects. Before this innovation spread to the south of the PIE continuum, Anatolians had already left for their new homeland, later called Anatolia, around 21st–20th centuries BCE (heading through the Caucasus).

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